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AUTHOR	Weinberg, Meyer
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ABSTRACT

Instructional technology has often been hailed as the answer to the problem of education the disadvantaged child. But examination of studies of these children has proved that some of the assumptions about them have been false and that instructional technology may, in fact, be a hindrance. There is no proof that slum children are good at motor tasks and poor at conceptual learning. Disadvantaged children are more dependent on the approval of their teacher than are middle-class children who receive adequate praise for academic achievement at home. Placing any mechanical barrier between the disadvantaged child and the teacher is likely to slow his development. The greatest potential of instructional technology is that it affords a further opportunity to apply new technical resources to enduring educational challenges. (JY)

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Instructional Technology and the Disadvantaged Child

by Meyer Weinberg*

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This paper inquires whether instructional technology has a special significance for educationally disadvantaged children. It is not concerned with those aspects of instructional technology which are equally important both for the advantaged and disadvantaged. Secondarily, the paper explores how educational technology can make school learning more relevant to the disadvantaged child.

1. The Technology of Anything

Any area of practical activity which is based on traditional techniques alone will resist change strongly. Practitioners whose only testing ground is experience will be suspicious of solutions that do not arise from daily experience. The suspicion may, in fact, be well-grounded. When daily routines are known to "work," even though the basis of that operability remains obscure, it is prudent to push no further. The medieval artisan who tanned leather without precise knowledge of the chemistry of the process was being rational when he rejected a new way of tanning. For, without scientific validation of the innovation--which was not possible, given the state of knowledge of chemistry--the contest was between the tried and tested and the untried.

Teaching proceeds in like manner. Age-old routines are perpetuated by practitioners who have--in Kelly Miller's phrase--the "knack without the knowledge."[1] Like the medieval tanner, the

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* Meyer Weinberg is coordinator of the Innovations Center at Chicago City College.

1. Kelly Miller, Radicals and Conservatives and Other Essays on the Negro in America. (New York: Schocken, 1968), p. 284.

teacher must stick close to established ways. Middling success or failure is the common outcome. Neither extraordinary success nor failure can be expected or explained for either involves the "knowledge" that only a science of instruction could afford us. For better or worse, such a science eludes the theorist.

Technique takes on breath and color only as it enters the everyday world of practical activity. The path of its entry, however, is hemmed in by numerous constrictions of vested interest and social privilege. In a society of social class-allocated goods and services, innovations are weighed and measured for the differential advantages they bestow. Educational innovations, for example, are generally associated with schools serving middle and upper class children rather than those serving inner-city, lower-class children.

Pre-occupation with innovation often leads to an over-emphasis upon technique. Frequently, this results in technologism, i.e., an unrealistic expectation of benefits from a simple change in what economists call the production function. This defective judgment results from an abstraction of technique from its social and cultural matrix. The innovation is viewed as an isolated tool or machine which, presumably, needs only be set in motion in order to produce immediate benefits. Those problems are sought that are amenable to the new process, while other problems remain unrecognized or ignored. The new technique may be politically useful as well, as social discontents are treated with mechanical

devices. Thus, defective educational goals and methods in ghetto schools are expected by some to yield before the pressure of tools and techniques such as computers, opaque projectors, team teaching, and irregular time periods.

The contemporary innovation movement serves a similar function by directing attention to reform measures that operate within the school. So defined, the crisis in education is seen to consist principally of instructional problems. Accordingly, social-political issues are excluded by indirection. Non-material technology, especially when it consists of inventions such as decentralization or community control, becomes a near-irrelevancy.

The breakthrough-psychology is yet another defect of thinking about technology. This is the view of technological progress as the sudden appearance of apocalyptic devices and techniques which sweep before them whole series of practical problems. It is a form of magical thinking, fed by ignorance of technological history and based on a blend of blind faith and a diffuse desire for change. The breakthrough-psychology reflects the impatience of ignorance and oversimplification. The rise of slavery in the United States, for example, is glibly converted into a response to the cotton gin which is, in turn, explained as the fortuitous consequence of Eli Whitney's vacation trip to Georgia in 1793. Omitted are the long line of experiments in cotton ginning, the state and trends of the world demand for cotton, bases for slave economy other than cotton, the problems of discovering a variety

of cotton that could be grown in dry, upland areas, and more.

In the field of education, the breakthrough-psychology can easily become a substitute for more fundamental thinking.

2. Disadvantagement, Dullness, and Technology

Lower-class persons are said to lack verbal ability, to be less "intellectual," and to excel in hand-work.

The psybhological literature is filled with findings that disadvantaged children are more "motoric" than "conceptual," more adequate in physical activities than in sustained studying. This distinction is also said to characterize child-rearing practices of lower-class parents as contrasted with middle-class parents. In his influential 1962 book, The Culturally Deprived Child, Frank Riessman wrote about the "physical approach" of the disadvantaged child. He declared that teaching machines, standard mechanical devices, and other physical and visual techniques were "uniquely appropriate for culturally deprived children."

A year later, however, Riessman reported to a conference on urban education:

> ... I had earlier advocated investigations of teaching machines and of program/ed/ learning in work with low income youngsters. I did this on the grounds that the full approach was physicalistic in character, that there were clear-cut structural reinforcements, that it was a game-like technique, etc. I must tell you that my more recent informal experience in different parts of the country is that this "just ain't so." What happens when you try the techniques with these youngsters is that at first they say, "Oh, this is an interesting game"; "it's going to be fun"; you get the answers right away." Later on they say: "I've been

> taken; this is just another reader," and a reading style is not the best style in which to break through to the low income youngster. I report this to you as an impression independently gathered by a number of people around the country.[1]

Such are the vagaries of communication that Riessman's earlier discussion continues to be cited widely while his later one is all but ignored.

In Birmingham, England, Davis and Leith studied the use of programed texts by children in two slum and two advantaged schools.[2] They found no significant differences between the performance scores of both groups. In one sense, the investigators held, the programed learning was more effective in the former schools. They pointed to the fact that the slum children had been working at a level much below the advantaged children prior to the experiment. Davis and Leith observe: "Inspection of their workbooks indicated a level of work much inferior to their peers in the good environment. Further, children at both /slum/ schools had suffered from the lack of continuity of untrained teachers, supply teachers, and the general lack of staff. Such base defects in previous training should have been reflected in poorer results."[3]

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1. Frank Riessman in Guidance for Socially and Culturally Disadvantaged Children and Youth (New York: Yeshiva University, 1963).

2. Terence N. Davis and George O. W. Leith, "Some Determinants of Attitude and Achievement in a Programed Learning Task," in Derick Unwin and John Leedham (eds.), Aspects of Educational Technology (London: Methuen, 1967), pp. 447-467.

3. Ibid., p. 453.

It is not possible to determine whether the lack of difference between slum and advantaged children was a lasting or a temporary phenomenon. Davis and Leith note that over a period of eight tests the slum students tended, especially in tests six and eight, to do more poorly than the advantaged students.[1]

Allison Davis has recently pointed out:

> About one-fourth of the more than 20 million slum children in this country under the age of fifteen have academic verbal superior to that of a third of the approximately 6 million upper-middle-class children under fifteen.... There actually are more able children, in gross numbers, in our slums than in our upper middle class.[2]

Nevertheless, the stereotype of dull, physicalistic intellects in the lower class is still widely accepted.[3]

If lower-class children were as dull as the stereotype prescribes, a question would still remain as to the special suitability of instructional technology in their schooling. In the absence of such correspondence, however, one must seek elsewhere for a convincing argument.

3. The Disadvantaged Child and Its Teacher

For the disadvantaged child, school has a very special significance. Much of that significance centers on the teacher. What does the research literature say on this subject?

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1. Ibid., p. 454.

2. Allison Davis, "The Educability of the Children of the Poor," in The Unfinished Journey. Issues in American Education (New York: John Day, 1968), pp. 69-70.

3. A straightforward rejection of the stereotype can be found in Joan I. Roberts in Roberts (ed.), School Children in the Urban Slum (New York: Free Press, 1967), p. 28.

Irwin Katz has emphasized that lower-class children, not having received a great deal of parental approbation for intellectual performance, "remain more dependent than middle-class children on social reinforcement when performing academic tasks."[1] Negro children, Katz continues:

> ... are likely to be highly dependent on the immediate environment for the setting of standards and dispensing of rewards.... Teacher attitudes toward Negro children will be highly important for their classroom behavior.[2]

In the process of desegregation, the role of the teacher becomes crucial for the Negro child.[3]

Katz is concerned with social reinforcement, a concept that has little or nothing to do with the concept of reinforcement in conventional learning theory. He stresses the reinforcement of motivation that arises from interaction between student and student as well as student and teacher.

Geisel studied the self-concept of children in Nashville, Tennessee. He found a significant racial difference:

> The teacher for the white child is likely to be simply an instrumental agent of the school. For

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1. Katz, "Some Motivational Determinants of Racial Differences in Intellectual Achievement," International Journal of Psychology (1966), MS p. 8.

2. Ibid., p. 13.

3. Katz, Desegregation or Integration in Public Schools? The Policy Implications of Research, unpublished paper prepared for the U.S. Commission on Civil Rights, November, 1967, p. 18.

> the Negro child she also represents a status position and a respected social role.... The Negro child who feels he is important in the eyes of the teacher is optimistic about the future and also thinks that education is very important. This pattern is much less pronounced for white youth.[1]

The significance of the school is strongly mediated through the teacher.

The Equal Educational Opportunity Survey (the "Coleman Report") attempted to account for academic achievement differences in terms of family background, quality of school, and attributes of the student body. Most important was the third factor; and it was especially significant for the most disadvantaged students. At the same time, the Survey reported:

> ... Good teachers matter more for children from minority groups which have educationally deficient backgrounds.... For any groups whether minority or not, the effect of good teachers is greatest upon the children who suffer most educational disadvantage in their background, and ... a given investment in upgrading teacher quality will have most effect on achievement in underprovileged areas.[2]

The Survey did not establish the empirical grounds of this connection. Unlike Katz and Geisel, for example, the Survey simply recorded the existence of such a connection.

One implication of the Katz and Geisel research is that the education of disadvantaged children proceeds best with a minimum of technological intervention between student and teacher. It

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1. Paul N. Geisel, I Q Performance, Educational and Occupational Aspirations of Youth in a Southern City: A Racial Comparison, unpublished Ph.D. dissertation in Sociology, Vanderbilt University, 1962, p. 211 (University Microfilm No. 63-1838).

2. James S. Coleman and others, Equality of Educational Opportunity (Washington, D.C.: Government Printing Office, 1966), p. 317.

seems to be the middle-class children--whose social need for the school is minimal--who can best "afford" technological interventions. The Coleman research is not inconsistent with such an interpretation.

Disadvantaged children bear the stigma of deprivation from an early age. In their school career, especially, is the lesson learned repeatedly. If we would help such children counterbalance the stigma, a deeply personal (and interpersonal) approach will need to be used. It is a fundamental defect of much contemporary educational technology that it stresses individual and isolated aspects of the learning process. One thinks, for example, of the single student using a tape installation in a private study carrel; or, a single student plodding his solitary way through a programed textbook. A much more productive approach for disadvantaged students is to make classroom instruction almost exclusively a face-to-face transaction between student and teacher.

In England, Robson has discussed the problem of social isolation of the learner in programed learning.[1] Such isolation, he reports, "is likely to favor those students who are less dependent on stimulation from group contact and on receiving encouragement from a human instructor."[2] In the light of Katz's

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1. G. A. Robson, "Group Integration Without Group Interference: A Method of Presenting Programed Instruction," in Unwin and Leedham (eds.), Aspects of Educational Technology, pp. 523-531.

2. Ibid., p. 524. A similar finding is reported in B. A. Doty and L.A. Doty, "Programed Instructional Effectiveness in Relation to Certain Student Characteristics," Journal of Educational Psychology, 55, 6, 334-338.

theory, this would add an especially large disadvantage to the deprived child. As Robson puts it: "It is not inconceivable that one day a student will be as familiar with individual programed instruction as with the now-conventional group instruction, but until that time comes we must remember that we are asking more of the student than that he become acquainted simply with our programs; we are also expecting him to adjust to what is to him an unfamiliar classroom environment."[1] Robson has experimented with combining programed instruction with pairs of students in an effort to overcome, in part, the element of social isolation.

In still another way may educational technology be especially inappropriate for the disadvantaged. Many of the newer proposals assume, in Martin Deutsch's words, "that the child has reached a particular level in skills which underlie them."[2] Deutsch goes on to observe that such an assumption is unwarranted for the disadvantaged child, but not for the middle-class child. One characteristic of the "cognitive deficit" is its very irregularity. So irregular is it, in fact, that no standardized or mechanized strategy can be devised to counter it. Once more we are led to the need for an imaginative face-to-face encounter of student and teacher. The building of intrinsic motivation can hardly proceed otherwise than in a social-psychological framework between human actors. One could, of course, prescribe the educational task

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1. Ibid., p. 530.

2. Martin Deutsch and associates, The Disadvantaged Child (New York: Basic Books, 1967), p. 62.

as one of mere response to extrinsic pressures of status and job preparation. Even this definition, however, would not obviate the task of creating or extending intrinsic motivation among the disadvantaged.

A claim frequently made on behalf of programed learning is that it can release teachers for more individualized work with students. As we saw above, however, the disadvantaged student needs "individualized" teaching at all points of his classroom experience. It would, therefore, be robbing Peter to pay Paul for the disadvantaged student to suffer the burdens of instructional technology on the premise that individuation will come later.

Instructional technology is, apparently, one of the advantages that American society is willing to grant to the disadvantaged student. In more advantaged schools, to be sure, instructional technology plays a role, but a secondary one. Schools for the most advantaged children prefer to employ the most qualified teachers and to apportion their talents among modest-sized classes. Individuation is a constant password, if not always a working reality. Few reformers have prescribed automated classrooms for such schools.

On the other hand, it is the uncommon discussion of educational disadvantagement that fails to list instructional technology as a prime road to excellence. As we saw earlier, the research support for this argument is slight, at best. The contrary is

more likely true. This suggests that the prescription is ideological. It complements the widespread myth of cultural deprivation. Both views regard the disadvantaged child as a helpless victim of cultural difference, so maimed by circumstance that he is beyond the possibility of becoming an autonomous, creative person. Consequently, he is allotted a meager share of the school's resources on the paternalistic argument that he could not profit from more. Regarded as a passive object of society's pressures, his passivity is to be strengthened by becoming an object of instructional technology rather than partner in a classroom transaction.

The ideological element in thinking about educational disadvantagement has been explored by a number of students in recent years. Although not well-known, the discussions deserve more attention than they have received.[1] It is but a short step to apply a similar analysis to the ideological element in thinking about educational technology.

4. A Socially Relevant Educational Technology

Educational technology can become more relevant to the education of disadvantaged youth. Such relevance hinges on a more meaningful classroom exploration of critical concepts. No

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1. See Norman L. Friedman, "Cultural Deprivation: A Commentary on the Sociology of Knowledge," Journal of Educational Thought, August, 1967; Edmund W. Gordon and Doxey A. Wilkerson, "A Critique of Compensatory Education," in Compensatory Education for the Disadvantaged (New York: College Entrance Examination Board, 1966); Bernard Mackler and Morsley G. Giddings, "Cultural Deprivation: A Study in Mythology," Teachers College Record, April, 1965; Diane Ravitch, "Programs, Placebos, and Panaceas," Urban Review, April, 1968; and Murray and Rosalie Wax, "Cultural Deprivation as an Educational Ideology," Journal of American Indian Education, January, 1964

single teaching technology has any special affinity to the topic. One can easily imagine an instructional role for programed instruction, videotape, slide projectors, or motion pictures. The first task, rather, is to select that aspect or those aspects of the subject that will provide a short cut to relevance for disadvantaged youngsters. Here are two examples, described in summary fashion.

A. The Industrial Revolutions. These movements should be studied from the bottom up, so to speak. Large-scale economic changes produce social derangements. Thus, in England, Germany, or the United States, the first impact of industrialization was to create an impoverished class, which lost any traditional supports such as family and community. The growing instability of employment added to the low incomes that were aggravated by labor oversupply, produced unprecedented social instabilities. Factory production crowded unheard-of masses of people in small areas; housing and health problems multiplied. In the United States, a large part of the essential industrial work-force consisted of socially stigmatized Irish immigrants who were segregated in residences, employment, religion, and social life. All this, curiously enough, occurred in a general context of economic growth.

The pedagogic challenge lies in the ability of the educator to relate the life situation of the disadvantaged student to the broadly analogous circumstances of the earliest industrial work force. From this step, one can proceed to the technology of industrialism; next, logically, to the financial-economic structure

of expanding industrialism; and then back again to an expanded view of the entire social structure undergoing change.

If we do this--or something like it--we will first have to dispose of all those educational films that present the Industrial Revolution simple-mindedly as a mere procession of machines and tools. And we shall need a great span of exciting materials which instructional technology has the capacity to produce. There can, however, be no excitement for disadvantaged or advantaged students in a hackneyed, dreary rehearsal of all the banalities of Arkwright and Watt--or was it Watt and then Arkwright?

B. The Negro in American History. The principal significance of the Negro in American history is the role he played in determining that history. Thus, his role must be delineated with reference to the role of white America as well as with the development of a Negro sub-culture. This involves an historical examination of racism in America--its foundations and functions in both its legal and customary forms; and of the political uses of racism. Essential is an examination of the institutions of Negro daily life, from their plantation beginnings to their contemporary urban forms.

It is peculiarly important to dwell on the intellectual expressions of Negro American life. The poetry, the historiography, the sociology, and the social commentary of black America can be presented as normal expressions of a people hard at work, thought, and life. We need to be ready to re-evaluate old views by adopting, momentarily at least, new perspectives. How does

immigration look to the only ethnic group that was ever forced to become immigrants to this country? How does the period of Jacksonian democracy appear to a people whose free contingent was deprived legally of one civil right after another during those years? How does a people view Lockean individualism after three centuries of being mere objects of commerce?

To approach these questions honestly and resourcefully is to be relevant to the great challenges of our day.

Instructional technology, then, has no special significance for educating disadvantaged children. Certain forms of it, in fact, have a built-in handicap for these children. Its greatest potential is to afford educators a further opportunity to apply new technical resources to enduring educational challenges.